

triggering factor, it does not disclose limiting the application of a braking force or pressure to a maximal value when the vehicle is at a standstill as recited in claim 1.

The Schunck reference relates to a technique of reducing sudden changes in deceleration when coming to a standstill whereby a control system overrides a driver's braking commands and implements a progressive diminution in brake pressure so that the deceleration drops monotonously from an initial level to lower levels. See Schunck, col. 3, lines 28-35. An exemplary use of this technique is illustrated in the graphs of Fig. 4b which shows (at the dotted lines), the effect of the technique in gradually and progressively reducing the pressure (PRADi) after time T1, at which the speed of the vehicle falls below a threshold velocity VREFSS.

The above-described technique of Schunck differs from the method recited in claim 1 in that Schunck does not describe setting an upper limit on the pressure applied to the vehicle when the vehicle is at a standstill. A comparison of Figs. 3a to 3c of the present invention with Figs. 4a to 4d of Schunck provides a clear illustration of this difference. Even if one were to equate the threshold condition (VREFSS) of Schunck with a standstill condition along the lines suggested by the Examiner – which is not admitted, but merely addressed for illustrative purposes – at the point where the respective threshold conditions are met, the outcome is different. In Schunck, at the point where the threshold condition is met, T1, the pressure (in Fig. 4b) begins to drop progressively according to a profile calculated to produce a monotonic drop in deceleration (see Fig. 4d). According to the present invention, at the threshold condition (standstill) at time T0, the pressure (PRAD, shown in Fig. 3c) drops precipitously from the setpoint pressure determined from the driver's input (PRADSOLLFW) to the upper limit, maximal pressure (PRADSOLLGRENZ). Thus, while Schunck prescribes a progressive, monotonic pressure decrease once the threshold condition is met (in order to prevent a large deceleration), the present invention according to claim 1 calls for an upper limit on the pressure so that, for example, the pressure immediately drops from the setpoint to the maximal pressure to prevent excessive application of braking force when not necessary.

For the foregoing reasons, it is submitted that Schunck does not disclose the features of claim 1, which is, therefore, not anticipated by the Schunck reference. Claims 3, 7 and 8 depend from claim 1. Accordingly, the arguments presented above in connection with Schunck and claim 1 apply equally to claims 3, 7 and 8.

Since independent claim 10 recites features analogous to those discussed above of claim 1, it is patentable over Schunck for at least the same reasons given above with respect to claim 1.

Accordingly, it is respectfully submitted that claims 1, 3, 7, 8 and 10 are patentable over Schunck, and withdrawal of the rejection is, therefore, requested.

III. REJECTION OF CLAIMS 1, 3, 5, 7, 8 AND 10 UNDER 35 U.S.C. § 103

Claims 1, 3, 5, 7, 8, and 10 stand finally rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,332,654 to Yano (Yano). It is submitted that none of claims 1, 3, 5, 7, 8, and 10 are anticipated by Yano, for at least the following reasons.

In the Response to Arguments section of the Final Office Action, it is asserted that Yano uses a target pressure as a maximum brake pressure and that if the pressure is exceeded, the brake pressure is reduced and thereby limited. The Final Office Action cites item 1207 of Figure 12 of the Yano reference in support of this assertion. For the following reasons, it is respectfully submitted that Yano does not disclose limiting the application of a braking force or pressure to a maximal value when the vehicle is at a standstill as recited in claim 1.

Yano relates to a grade-holding brake system used for maintaining a brake pressure and a stopped condition after release of the brake pedal. See e.g., Yano, Abstract. Yano describes the details of an embodiment of this system in Figs. 9, 10, 11 and 12 and the accompanying text (col. 9, line 50 to col. 12, line 7). With respect to Fig 12, item 1207 refers to a “pressure decreasing operation”. As indicated in Fig. 12, this pressure decreasing operation is performed when a Ycntrl flag is set, an absolute value of a ZdP parameter is not less than an XdP parameter, and the ZdP parameter is not greater than zero. The accompanying text explains that step 1207 involves several sub-steps shown in Fig. 13C which include: holding a cut-off valve in a closed position for a predetermined period of time (thereby maintaining the pressure at the wheel brake cylinders for a predetermined period of time, since by having the cut-off valve closed, fluid cannot flow back away from the wheel brakes; opening the cut-off valve, closing the pressure booster valve; and turning the pressure booster pump off. See Yano, col. 11, lines 25-32. In this manner, Yano states, “it is possible to appropriately compensate for the pressure deviation [between the actual and target pressure levels]”. Yano describes in an immediately preceding passage a converse pressure increasing process used when the actual pressure is lower than the target pressure in which the cut-off valve is similarly held closed for a predetermined period of time, but then the pressure booster valve is opened and the pressure booster pump is turned on for a predetermined period of time. Yano, col. 11, lines 9-15. With respect to this latter process, it is stated that “if the predetermined periods of time for controlling the pressure booster valve and . . . pump are set at values corresponding to the

pressure deviation ZdP, it is possible to appropriately compensate for the pressure deviation.” Yano, col. 11, lines 16-20.

From these passages, it is clear that Yano discloses an adjustment mechanism to either *decrease or raise* brake pressure to a target level over time when the vehicle has come to rest. What is significant here is that there is absolutely no disclosure as to providing an upper limit or maximal pressure in the case of a standstill to, for example, prevent excessive and unnecessary loading. In fact, Yano never refers to this objective, and thus merely describes stipulating a target pressure and using a valve system adjust the brake pressure to within a small deviation from the target pressure over time. In this context, it is emphasized that simply because an electronic brake control system may adjust actual brake pressure to a target level in a given context – which may involve decreasing the brake pressure if it is determined that the actual brake pressure is increasing beyond the range of the target level – this is not the same as prescribing the target as an upper limit for the actual pressure. In anticipation of the view the Examiner may take that prescribing a range automatically entails prescribing an upper limit or ceiling, Applicants note that these are not the same, because there is no disclosure (or suggestion) in Yano that the target pressure level is itself limited to an upper value, only a brief indication that the target level may optionally represent a level sufficient to maintain the vehicle at rest.¹

For at least these reasons, it is respectfully submitted that independent claim 1 its dependent claims 3, 5, 7, 8 and independent claim 10 are not anticipated by Yano. Withdrawal of the rejection of the claims based on the Yano reference is, therefore, respectfully requested.

¹Yano states that the target pressure is “*preferably* of a value sufficient to keep the stopping condition of the vehicle. Yano, col. 10, lines 22-24 (emphasis added). There is no disclosure or suggestion that the target pressure represents an upper threshold or limit beyond which unnecessary loading occurs.

IV. CONCLUSION

Each of the issues raised by the Examiner has been addressed. It is respectfully submitted that all pending claims (1, 3, 5, 7, 8 and 10) are in condition for allowance. Passage to issuance is requested.

Respectfully Submitted,

KENYON & KENYON

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By: 

Richard L. Mayer
(Reg. No. 22,490)

One Broadway
New York, NY 10004
(212) 425-7200

CUSTOMER NO. 26646